

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Glenn Mahony et al.

Group Art Unit: 2613

Serial No.: 10/606,677

Examiner: Li, Shi K

Filed: June 26, 2003

Confirmation No.: 5379

For: HYBRID FIBER TO THE HOME/FIBER TO THE CURB TELECOMMUNICATIONS
APPARATUS AND METHODS

Date: October 1, 2008

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.67

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences" filed July 24, 2008 and in response to the "Decision of Pre-Appeal Brief Review Panel" dated September 3, 2008.

Real Party In Interest

The real party in interest is assignee BellSouth Intellectual Property Corporation by virtue of an assignment recorded at reel number 015069 and frame number 0364.

Related Appeals and Interferences

Appellants are aware of no appeals or interferences that would be affected by the present appeal.

Status of Claims

Appellants appeal the final rejection of Claims 1, 7, 8, 11, 16, 17, 19, 20, 24, 32, 33 and 35, which, as of the filing date of this brief, remain under consideration. The attached Appendix of Claims represents the claims at issue as finally rejected in the Final Office Action dated April 25, 2008 (the "Final Action"). Claims 1, 7, 8, 11, 16, 17, 19, 20, 24, 32, 33 and 35 are pending and stand rejected. Claims 12-14 are withdrawn from consideration and Claims 2-6, 9, 10, 15, 18, 21-23, 25-31 and 34 are canceled.

Status of Amendments

The Appendix of Claims submitted herewith reflects the state of the claims of record. No amendments were filed after the Final Office Action dated April 25, 2008.

Summary of Claimed Subject Matter

Claim 1 is directed to a telecommunications system comprising a passive optical network (PON). *See, e.g.*, Specification, page 1, lines 27-28. The PON includes an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises. *See, e.g.*, Specification, page 1, line 28 – page 2, line 2. An optical network unit (ONU) is coupled to the PON and configured to provide communications for the plurality of the subscriber premises. *See, e.g.*, Specification, page 2, lines 2-4. The optical splitter directly subtends the ONU and the optical splitter and the ONU are co-located. *See, e.g.*, Specification, page 2, lines 5-7. The ONU is powered by a power source at a location remote from the ONU. *See, e.g.*, Specification, page 2, lines 7-8. A composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively. *See, e.g.*, Specification, page 2, lines 8-11. The optical splitter interfaces a first optical fiber to a plurality of second optical fibers. *See, e.g.*, Specification, page 2, lines 12-13. One of the second optical fibers directly connects the optical splitter to the ONU and at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises. *See, e.g.*, Specification, page 2, lines 13-16. At least one of the second optical fibers serves a second optical splitter. *See, e.g.*, Specification, page 2, lines 17-19. The optical splitter and the ONU are positioned at a pole. *See, e.g.*, Specification, page 3, lines 1-2. At least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises. *See, e.g.*, Specification, page 3, lines 2-3. The ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters. *See, e.g.*, Figure 1, ref. nos. 110, 120a-c, 130.

Claim 17 is directed to a telecommunications system that includes a passive optical network (PON) including an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises. *See, e.g.*, Specification, page

1, line 26 - page 2, line 2. The system includes an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises. *See, e.g.*, Specification, page 2, lines 2-4. The optical splitter directly subtends the ONU, the optical splitter and the ONU are co-located, and the optical splitter and the ONU are positioned at a pedestal or pole. *See, e.g.*, Specification, page 2, lines 5-7. The ONU is powered by a power source at a location remote from the ONU. *See, e.g.*, Specification, page 2, lines 7-8. A composite copper/fiber cable couples a host digital terminal (HDT) and the power source to the optical splitter and the ONU, respectively. *See, e.g.*, Specification, page 9, lines 15-22, Figure 4, ref. nos. 422, 424, 425, 430a, 440. The ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters. *See, e.g.*, Figure 1, ref. nos. 110, 120a-c, 130. The OLT is located at one of a central office (CO) or a remote terminal (RT). *See, e.g.*, Specification, page 2, lines 9-11. The optical splitter interfaces a first optical fiber to a plurality of second optical fibers. *See, e.g.*, Specification, page 2, lines 12-13. One of the second optical fibers directly connects the optical splitter to the ONU. *See, e.g.*, Specification, page 2, lines 13-14. At least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises. *See, e.g.*, Specification, page 2, lines 14-16. At least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises. *See, e.g.*, Specification, page 3, lines 2-3. The optical splitter and the ONU are positioned at a pole on a first side of a street and at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street. *See, e.g.*, Specification, page 3, lines 10-17. An aerial composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a second pole on the first side of the street. *See, e.g.*, Specification, page 3, lines 12-14. The system further comprises a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street. A plurality of aerial conductor drops extending from the second pole to the subscriber premises on the first and second sides of the street. *See, e.g.*, Specification, page 2, lines 14-19.

Claim 24 is directed to a method of providing communications services that includes serving ONTs located at respective ones of a plurality of subscriber premises with an optical

splitter of a hierarchical passive optical network (PON). *See, e.g.*, Specification, page 3, lines 28-30. Communications are provided via electrical media for the plurality of subscriber premises from an optical network unit (ONU) coupled to the PON. *See, e.g.*, Specification, page 3, lines 30-32. The ONU directly subtends the optical splitter and is co-located the optical splitter. *See, e.g.*, Specification, page 2, lines 5-6. The ONU is powered from a power source at a location remote from the ONU. *See, e.g.*, Specification, page 2, lines 7-8. A first optical fiber is interfaced to a plurality of second optical fibers at the optical splitter. *See, e.g.*, Specification, page 2, lines 12-13. One of the second optical fibers is directly connected to the ONU. *See, e.g.*, Specification, page 2, lines 13-14. A subscriber premises of the plurality of subscriber premises is served with at least one of the second optical fibers. *See, e.g.*, Specification, page 2, lines 14-16. At least one of the second optical fibers is directly connected to an ONT at a subscriber premises. *See, e.g.*, Specification, page 2, lines 16-17. A second optical splitter is served with at least one of the second optical fibers. *See, e.g.*, Specification, page 2, lines 17-19. Co-locating the optical splitter and the ONU comprises positioning the optical splitter and the ONU at the same pedestal or pole. *See, e.g.*, Specification, page 2, lines 6-7. The ONU is coupled to one of an OLT or an HDT of the PON through a plurality of optical splitters. *See, e.g.*, Specification, page 9, lines 15-22, Figure 4, ref. nos. 422, 424, 425, 430a, 440.

Grounds of Rejection to be Reviewed on Appeal

1. Claims 7, 17 and 19-20 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Final Action, page 2.
2. Claims 1, 8, 11, 16, 24, 32 and 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,577,414 to Feldman et al. ("Feldman") in view of U.S. Patent No. 7,349,394 to Sala et al. ("Sala"), U.S. Patent No. 6,236,789 to Fitz ("Fitz"), U.S. Patent No. 6,427,042 to Dyke et al. ("Dyke"), and U.S. Patent No. 5,606,555 to Singer ("Singer"). Final Action, page 3.
3. Claims 7, 17, 19, 20 and 33 are rejected under 35 U.S.C. §103(a) in view of Feldman, Sala, Fitz, Dyke, Singer and "Service-Affecting Optoelectronic Failures in FITL Systems: Downtime, Repair Actions, and Maintenance Expenses" by R. Iglesia ("Iglesia"). Final Action, page 5.

Argument

I. Introduction

A. Section 112, first paragraph

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. *See, e.g., Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 U.S.P.Q.2d 1429, 1438 (Fed. Cir. 2003). The possession test requires assessment from the viewpoint of one of skill in the art. *See Vas-Cath Inc. v. Mahurkar*, 935 F.3d 1306, 1563-64, 19 U.S.P.Q.2d 1111 (Fed. Cir. 1991). "The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed' " *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 997, 54 U.S.P.Q.2d 1227, 1232 (Fed. Cir. 2000).

B. Section 103

To establish a *prima facie* case of obviousness, the prior art reference or references when combined must teach or suggest all the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. §2143. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U. S. 1, 15 (2007). A corollary principle is that, when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be unobvious. *Id.* at 12. If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Id.* at 13. A Court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 13. When it is necessary for a Court to look at interrelated

teachings of multiple patents, the Court must determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *Id.* at 14.

Appellants respectfully submit that the pending claims are patentable over the cited references because the cited references, alone or in combination, fail to disclose or suggest the recitations of the pending claims.

II. Claims 7, 17, 19 and 20 comply with Section 112, first paragraph

The Final Action rejects Claims 7, 17 and 19-20 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Final Action, page 2. The Final Action cites portions Claim 7 and Claim 1, from which Claim 7 depends, as reciting limitations not taught in the specification. Final Action, page 2. The Final Action specifically states that nowhere does the instant specification teach that an ONU is coupled to both an OLT and a HDT. Final Action, page 2. Appellants submit that the Final Action appears to incorrectly interpret the claim language by apparently failing to consider the recited terms "respectively" in the claims. In this regard, Claims 1, 7, and 17 all appear to consistently recite that the ONU is connected to the power source. Accordingly, Appellants respectfully request that the rejections under 35 U.S.C. § 112, first paragraph, be reversed.

III. Rejections of Independent Claims 1 and 24

As stated above, independent Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Feldman, in view of Sala, Fitz, Dyke, and Singer. Claim 1 recites:

A telecommunications system, comprising:
a passive optical network (PON) including an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises; and
an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises,
wherein the optical splitter directly subtends the ONU,
wherein the optical splitter and the ONU are co-located,
wherein the ONU is powered by a power source at a location remote from the ONU,
wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively,
wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers,

wherein one of the second optical fibers directly connects the optical splitter to the ONU,
wherein at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises,
wherein at least one of the second optical fibers serves a second optical splitter,
wherein the optical splitter and the ONU are positioned at a pole,
wherein at least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises,
and
wherein the ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters. (*Emphasis added.*)

Appellants respectfully submit that Feldman, Sala, Fitz, Singer and Dyke, alone or in combination, do not disclose or suggest "wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively," as recited in Claim 1, in combination with other recitations therein.

In response to Appellants' arguments, the Final Action states that "[t]he terms OLT and HDT are equivalent." Final Action, page 7. As an initial matter, Appellants note that the terms are specifically and distinctly recited in Claim 1 and thus cannot be rendered equivalent by some extrinsic source or erroneous conclusion. Moreover, the Final Action contradicts itself. For example, the distinction between an OLT and a HDT was the basis for the confused interpretation upon which the Final Action based the rejections under 35 U.S.C. §112, first paragraph, as discussed above.

Additionally, Appellants respectfully submit that Claim 1 is directed to a system that includes a specific combination of recitations that is not disclosed or suggested in the cited references. Further, Appellants respectfully submit that given the scope of the claim recitations, an obviousness rejection using the number of references that would have to be combined to read on the claims would necessarily be based on hindsight analysis and therefore be improper. Accordingly, Appellants respectfully submit that Claim 1 is patentable and request that the rejections thereof be reversed for at least these reasons.

Claim 24 is a method claim that includes recitations similar to those of Claim 1 and is patentable for at least the reasons discussed above. Accordingly, Appellants respectfully request that the rejections of Claim 24 be reversed for at least the same reasons.

IV. Rejections of Independent Claim 17

As stated above, Claim 17 stands rejected under 35 U.S.C. §103(a) in view of Feldman, Sala, Fitz, Dyke, Singer and Iglesia. Claim 17 recites:

A telecommunications system, comprising:
a passive optical network (PON) including an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises; and
an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises,
wherein the optical splitter directly subtends the ONU,
wherein the optical splitter and the ONU are co-located,
wherein the optical splitter and the ONU are positioned at a pedestal or pole,
wherein the ONU is powered by a power source a location remote from the ONU,
wherein a composite copper/fiber cable couples a host digital terminal (HDT) and the power source to the optical splitter and the ONU, respectively,
wherein the ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters,
wherein the OLT is located at one of a central office (CO) or a remote terminal (RT),
wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers,
wherein one of the second optical fibers directly connects the optical splitter to the ONU,
wherein at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises,
wherein at least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises,
wherein the optical splitter and the ONU are positioned at a pole on a first side of a street,
wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street,
wherein an aerial composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a second pole on the first side of the street, and
wherein the system further comprises:
a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street; and

a plurality of aerial conductor drops extending from the second pole to the subscriber premises on the first and second sides of the street. (*Emphasis added.*)

Appellants respectfully submit that Feldman, Sala, Dyke, Fitz, Singer and Iglesia, alone or in combination, do not disclose or suggest "wherein a composite copper/fiber cable couples a host digital terminal (HDT) and the power source to the optical splitter and the ONU, respectively," as recited in Claim 17, in combination with other recitations therein. The Final Action states that:

Feldman et al. teaches in col. 7, lines 1-2 that the OEC is powered by the network. It is understood that it means the power source is at a remote location and power is fed to the OEC via a distribution network. Fitz teaches in FIG. 2 a composite copper/fiber cable for distributing power and optical signal from a central office (CO) or headend to ONUs.

Final Action, pages 3-4. Appellants respectfully submit that the generalized discussion of distributed power that is provided the Final Action does not provide sufficient support for a rejection of the specific recitations of Claim 17.

Additionally, Feldman, Sala, Dyke, Fitz, Singer and Iglesia, alone or in combination, do not disclose or suggest "a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street," as recited in Claim 17, in combination with other recitations therein. The Final Action states that:

Dyke et al. teaches in FIG. 1 street distribution comprising poles and drop fibers. One of ordinary skill in the art would have been motivated to combine the teaching of Dyke et al. with the modified PON of Feldman et al., Sala et al., Fitz and Singer.

Final Action, page 5. Appellants respectfully submit that the generalized discussion of a passive optical network architecture that is provided the Final Action does not provide sufficient support for a rejection of the specific recitations of Claim 17. Additionally, Appellants respectfully submit that Claim 17 is directed to a system that includes a specific combination of recitations that is not disclosed or suggested in the cited references.

Additionally, Appellants respectfully submit that given the scope of the claim recitations, an obviousness rejection using the number of references that would have to be

combined to read on the claims would necessarily be based on hindsight analysis and therefore be improper. Accordingly, Appellants respectfully submit that Claim 17 is patentable and request that the rejection thereof be reversed for at least these reasons.

V. Rejections of Dependent Claims

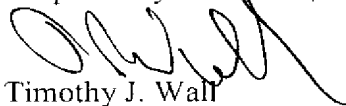
Appellants submit that dependent Claims 7, 8, 11, 16, 19, 20, 32, 33 and 35 are patentable at least by virtue of the patentability of the respective ones of independent Claims 1, 17 and 24 from which they depend. Accordingly, Appellants respectfully request that the rejections of dependent Claims 7, 8, 11, 16, 19, 20, 32, 33 and 35 be reversed.

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CONCLUSION

In view of the above discussion, Appellants submit that the rejection of Claims 1, 7, 8, 11, 16, 17, 19, 20, 24, 32, 33 and 35 should be reversed and the present application passed to issue.

Respectfully submitted,




Timothy J. Wall
Attorney for Appellants
Registration No. 50,743

Customer No. 39072

Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, North Carolina 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401

CERTIFICATION OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on October 1, 2008.


Michele P. McMahan

Appendix of Claims

1. (Previously presented) A telecommunications system, comprising:

a passive optical network (PON) including an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises; and

an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises,

wherein the optical splitter directly subtends the ONU,

wherein the optical splitter and the ONU are co-located,

wherein the ONU is powered by a power source at a location remote from the ONU,

wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively,

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers,

wherein one of the second optical fibers directly connects the optical splitter to the ONU,

wherein at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises,

wherein at least one of the second optical fibers serves a second optical splitter,

wherein the optical splitter and the ONU are positioned at a pole,

wherein at least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises, and

wherein the ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters.

2-6. (Canceled)

7. (Previously presented) A system according to Claim 1, wherein a composite copper/fiber cable couples a host digital terminal (HDT) and the power source to the optical splitter and the ONU, respectively.

8. (Original) A system according to Claim 1, comprising a plurality of ONUs that provide communications to respective geographical clusters of subscriber premises, and wherein the PON comprises a plurality of optical splitters configured to serve ONTs at respective ones of the geographical clusters of subscriber premises and subtending the respective ONUs.

9-10. (Canceled)

11. (Previously presented) A system according to Claim 1, wherein at least one of the second optical fibers serves a second ONU that provides communications for a second plurality of subscriber premises.

12. (Withdrawn) A system according to Claim 1:

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers;

wherein one of the second optical fibers directly connects the optical splitter to the ONU;

wherein the optical splitter and the ONU are positioned at a pedestal; and

wherein at least one of the second optical fibers comprises a buried fiber optic drop extending from the pedestal to an ONT at a subscriber premises.

13. (Withdrawn) A system according to Claim 1:

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers;

wherein one of the second optical fibers directly connects the optical splitter to the ONU;

wherein the optical splitter and the ONU are positioned at a pedestal;

wherein a buried composite cable carries at least one of the second optical fibers and at least one conductor from the ONU to a service drop location; and

wherein the system further comprises:

a second optical splitter at the service drop location that interfaces the at least one of the second optical fibers to at least one fiber optic drop connected to an ONT at a subscriber premises; and

at least one conductor drop extending from the service drop location to the subscriber premises.

14. (Withdrawn) A system according to Claim 1:

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers;

wherein one of the second optical fibers directly connects the optical splitter to the ONU;

wherein the optical splitter and the ONU are positioned at a pedestal on a first side of a street;

wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street; and

wherein a buried composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a location on a second side of the street to serve subscriber premises on the second side of the street.

15. (Canceled)

16. (Original) A system according to Claim 1:

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers;

wherein one of the second optical fibers directly connects the optical splitter to the ONU;

wherein the optical splitter and the ONU are positioned at a first pole; and

wherein an aerial composite cable carries at least one of the second optical fibers and at least one conductor from the ONU to a second pole; and

wherein the system further comprises:

a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to at least one aerial fiber optic drop connected to an ONT at a subscriber premises; and

at least one aerial conductor drop extending from the second pole to the subscriber premises.

17. (Previously presented) A telecommunications system, comprising:

a passive optical network (PON) including an optical splitter configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises; and

an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises,

wherein the optical splitter directly subtends the ONU,

wherein the optical splitter and the ONU are co-located,

wherein the optical splitter and the ONU are positioned at a pedestal or pole,

wherein the ONU is powered by a power source a location remote from the ONU,

wherein a composite copper/fiber cable couples a host digital terminal (HDT) and the power source to the optical splitter and the ONU, respectively,

wherein the ONU is coupled to an optical line terminal (OLT) through a plurality of optical splitters,

wherein the OLT is located at one of a central office (CO) or a remote terminal (RT),

wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers,

wherein one of the second optical fibers directly connects the optical splitter to the ONU,

wherein at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises,

wherein at least one of the second optical fibers comprises an aerial fiber optic drop extending from the pole to an ONT at a subscriber premises,

wherein the optical splitter and the ONU are positioned at a pole on a first side of a street,

wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street,

wherein an aerial composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a second pole on the first side of the street, and

wherein the system further comprises:

a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street; and

a plurality of aerial conductor drops extending from the second pole to the subscriber premises on the first and second sides of the street.

18. (Canceled)

19. (Previously presented) A system according to Claim 17, wherein the ONU is coupled to the OLT through a plurality of optical splitters.

20. (Previously presented) A system according to Claim 17:

wherein the optical splitter is configured to be coupled to a plurality of fiber optic drops that serve the plurality of subscriber premises;

wherein the ONU is configured to be connected to a plurality of conductor drops that serve the plurality of subscriber premises; and

wherein the OLT and the ONU are configured to provide a broadband service via the fiber optic drops and to provide a voice service and/or a data service via the conductor drops.

21-23. (Canceled)

24. (Previously presented) A method of providing communications services, the method comprising:

serving ONTs located at respective ones of a plurality of subscriber premises with an optical splitter of a hierarchical passive optical network (PON); and

providing communications via electrical media for the plurality of subscriber premises from an optical network unit (ONU) coupled to the PON;

directly subtending the ONU from the optical splitter;

co-locating the optical splitter and the ONU;

powering the ONU from a power source at a location remote from the ONU;

interfacing a first optical fiber to a plurality of second optical fibers at the optical splitter;

directly connecting one of the second optical fibers to the ONU;

serving a subscriber premises of the plurality of subscriber premises with at least one of the second optical fibers;

directly connecting at least one of the second optical fibers to an ONT at a subscriber premises; and

serving a second optical splitter with at least one of the second optical fibers,

wherein co-locating the optical splitter and the ONU comprises positioning the optical splitter and the ONU at the same pedestal or pole, and

wherein the ONU is coupled to one of an OLT or an HDT of the PON through a plurality of optical splitters.

25-31. (Canceled)

32. (Previously presented) A method according to Claim 24, further comprising serving at second ONU that provides communications for a second plurality of subscriber premises with at least one of the second optical fibers.

33. (Original) A method according to Claim 24, wherein the PON comprises one of an OLT or an HDT located at one of a central office (CO) or a remote terminal (RT).

34. (Canceled)

35. (Original) A method according to Claim 24:

wherein the optical splitter is configured to be coupled to a plurality of fiber optic drops to that serve the plurality of subscriber premises;

wherein the ONU is configured to be connected to a plurality of conductor drops that serve the plurality of subscriber premises; and

wherein the method further comprises:

providing a broadband service via the fiber optic drops; and

providing a voice service and/or a data service via the conductor drops.

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Evidence Appendix

NONE

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Related Proceedings Appendix

NONE